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PORCELAIN-ENAMELED STEEL UTENSILS

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(THIRD EDITION)

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COMMERCIAL STANDARD CS100-47

[Supersedes CS100-44]

Effective Date for New Production From December 7, 1947



A RECORDED VOLUNTARY STANDARD
OF THE TRADE

UNITED STATES DEPARTMENT OF COMMERCE

W. AVERELL HARRIMAN, Secretary

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COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division¹ of the National Bureau of Standards. The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the Standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office.

COMMERCIAL STANDARD FOR PORCELAIN-ENAMELED STEEL UTENSILS

On January 29, 1942, at the instance of the Enameled Utensil Manufacturers Council, a general conference adopted a recommended commercial standard, which was subsequently accepted by the industry and promulgated as Commercial Standard CS100-42, Multiple-Coated, Porcelain-Enameled Steel Utensils. On September 25, 1944, a revision proposed by the Council, approved by the standing committee, and accepted by the trade was announced as Commercial Standard CS100-44, Porcelain-Enameled Steel Utensils. At the instance of the Council, and with the approval of the standing committee, a recommended revision was submitted on April 17, 1947, to the trade, which has since accepted the revised standard as shown herein.

Project Manager: F. E. POWELL, assisted by W. H. JACKETT, JR., Commodity Standards Division, National Bureau of Standards.

Technical Advisers: W. N. HARRISON and J. C. RICHMOND, Mineral Products Division, National Bureau of Standards.

¹ Effective July 1, 1947, the Division of Simplified Practice, organized in 1921, and the Division of Trade Standards, organized in 1927, were combined to form the Commodity Standards Division. Since their organization, both of these Divisions have assisted many industries in the development of Simplified Practice Recommendations and Commercial Standards for a wide variety of commodities. A list of previously established Commercial Standards appears herein. A list of effective Simplified Practice Recommendations may be obtained from the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

COMMERCIAL STANDARD CS100-47

for

PORCELAIN-ENAMELED STEEL UTENSILS

(THIRD EDITION)

PURPOSE

1. The purpose of this commercial standard is to establish standard specifications and methods of test for porcelain-enameled steel utensils for the guidance of manufacturers, distributors, and users of this product. By its general acceptance and use, and by means of labels on the utensils certifying conformity with this standard, it is the aim to maintain the quality and appearance of porcelain-enameled steel utensils in accordance with approved standards.

SCOPE

2. This standard provides performance requirements for porcelain-enameled steel utensils, both multiple-coated¹ and single-coated, for cooking, household, food storage, and hospital use. The requirements include quality of base metal, appearance, thickness, enameling; resistance to boiling acid, thermal shock, and impact; capacity, methods of test, and identification.

GENERAL REQUIREMENTS

3. *Material of base.*—The metal base shall be a good grade of steel or iron having the strength, rigidity, and quality necessary for the production of multiple-coated or single-coated porcelain-enameled steel utensils meeting all the requirements of this specification.

4. *Appearance.*—The surfaces shall be commercially smooth, commercially uniform in color, and commercially free of fracture. The bottom of a cooking utensil, when resting on a plane surface, shall not be such that the utensil can be spun about a single point.

5. *Design.*—All ware shall be well formed; and seamless ware shall have a radius between sides and bottom suited to the shape and size of the particular utensil.

DETAIL REQUIREMENTS

6. *Capacity and dimensions.*—When the capacities or major dimensions of porcelain-enameled steel utensils are stated on labels, in catalogs, or in advertising matter, such capacities or dimensions shall be in accordance with the following rules:

¹ Two or more coats on steel.

(a) The actual liquid capacity of the ware when filled to the brim shall be stated in quarts (liquid measure) with tolerances as indicated below.

Capacity	Tolerance	
	Minus	Plus
<i>Quarts</i>	<i>%</i>	<i>%</i>
0 to 6.....	5	10.0
Over 6 to 16.....	5	7.5
Over 16.....	5	5.0

(b) The capacity of such utensils as are equipped with a spout—namely, coffee pots, teapots, teakettles, coffee boilers, etc.—shall be considered as the amount of liquid that can be put in up to the point of first overflow; percolators and drip-o-lators shall be rated on the amount of liquid that can be put in up to the bottom of the basket. Where the capacities of these items are expressed in cups, a 5-fluid-ounce beverage cup shall be considered standard for the industry.

(c) Where the capacities of utensils other than those mentioned in paragraph 6 (b), are rated in cups, such capacities shall be expressed in 8-fluid-ounce measuring cups.

(d) For such items as are customarily designated by dimensions, the dimensions given shall be outside measurements, exclusive of handles, unless otherwise stated, and shall be designated by inches within the tolerance of plus or minus 5 percent.

7. *Base metal*.—No utensils shall be of steel lighter than manufacturers' standard gage No. 30 (0.012 inch in nominal thickness, with a tolerance according to steel mill practice).

8. *Pouring lips*.—When the utensils have pouring lips, the lips shall be well proportioned so that there will be a minimum of drip and a stable flow of the liquid.

9. *Handles*.—Handles, where used, shall be well formed, of adequate size, of sturdy construction, and firmly and securely attached to the body of the utensil.

MULTIPLE-COATED, PORCELAIN-ENAMELED STEEL UTENSILS

10. *Boiling acid resistance*.—Test any multiple-coated porcelain-enameled steel utensil (three specimens thereof) having a bottom diameter large enough to permit blanking out of a test plate as specified in paragraph 16a (10). The loss in weight shall not exceed 0.0125 gram per square inch of wetted surface area when tested as specified in paragraph 16.

11. *Thermal shock resistance*.—Test any multiple-coated porcelain-enameled steel utensil (five specimens thereof) that can be filled with water to a depth of 1 inch. The average rating of the five utensils shall be not less than 3 cycles when tested as specified in paragraph 17.

12. *Impact resistance*.—Test any multiple-coated porcelain-enameled steel utensil (five specimens thereof) having a diameter of $4\frac{1}{2}$ inches or larger when measured in a plane $\frac{3}{8}$ inch above the bottom of the utensil. All utensils having a diameter of $4\frac{1}{2}$ to $6\frac{3}{8}$ inches

shall have an impact resistance of not less than 9 inches, and all utensils having a diameter of $6\frac{3}{8}$ inches or greater shall have an impact resistance of not less than 11 inches when tested as specified in paragraph 18. Seamed ware in which the seam forms the bottom outside radius is not tested for impact resistance, and ware which normally rests on a foot or a reverse panel shall be tested for impact on the true radius of the ware and not on the foot.

SINGLE-COATED, PORCELAIN-ENAMELED STEEL UTENSILS

13. *Boiling acid resistance.*—Test any single-coated porcelain-enameled steel utensil (three specimens thereof) having a bottom diameter large enough to permit blanking out of a test plate as specified in paragraph 16a (10). The loss in weight shall not exceed 0.0180 gram per square inch of wetted surface area when tested as specified in paragraph 16.

14. *Thermal shock resistance.*—Test any single-coated porcelain-enameled steel utensil (five specimens thereof) that can be filled with water to a depth of 1 inch. The average rating of the five utensils shall be not less than 9 cycles when tested as specified in paragraph 17.

15. *Impact resistance.*—Test any single-coated porcelain-enameled steel utensil (five specimens thereof) having a diameter of $4\frac{1}{2}$ inches or larger when measured in a plane $\frac{3}{8}$ inch above the bottom of the utensil. All utensils having a diameter of $4\frac{1}{2}$ inches to $6\frac{3}{8}$ inches shall have an impact resistance of not less than 6 inches, and all utensils having a diameter of $6\frac{3}{8}$ inches or greater shall have an impact resistance of not less than 7 inches when tested as specified in paragraph 18. Seamed ware in which the seam forms the bottom outside radius is not tested for impact resistance, and ware which normally rests on a foot or reverse panel shall be tested for impact on the true radius of the ware and not on the foot.

METHODS OF TEST

16. *Boiling acid resistance test.*

16a. Equipment:

- (1) Heat-Flo SB-2000 hot plate; 115 to 120 volts; 2,000 watts. Edwin L. Wiegand Co., 7500 Thomas Boulevard, Pittsburgh, Pa.
- (2) Variac 100-Q transformer (115 volts, primary) or Variac 100-R transformer (230 volts, primary); 2 kilovolt-amperes, 60 cycles. General Radio Co., 30 State Street, Cambridge, Mass.
- (3) Weston Model 432 wattmeter; scale 0 to 3 kilowatts, 75 to 150 volts, 20 amperes, or similar equipment for 230 volts. Weston Electrical Instrument Corp., 810 Penn Avenue, Pittsburgh, Pa. (Or suitable equipment.)
- (4) Adequate fuse protection.
- (5) Chemical glassware. Necessary beakers; a desiccator; and a 500-ml graduated cylinder.
- (6) A drier capable of attaining and holding a temperature of at least 220° F.

- (7) Boiling acid resistance apparatus (see fig. 1 and 1, A).
Three sets required.
- (8) Acid: (a) Citric acid (USP crystals).
NOTE.—The 6-percent citric-acid solution is made up just before starting the test.
- (9) Equipment for cutting a 3¼-in.-diameter plate from the bottom of a porcelain-enameled steel utensil:
(a) Punch and die (see fig. 2); or
(b) Shears; or
(c) Abrasive cut-off wheel; or
(d) Cutting torch; or
(e) Any other suitable equipment.

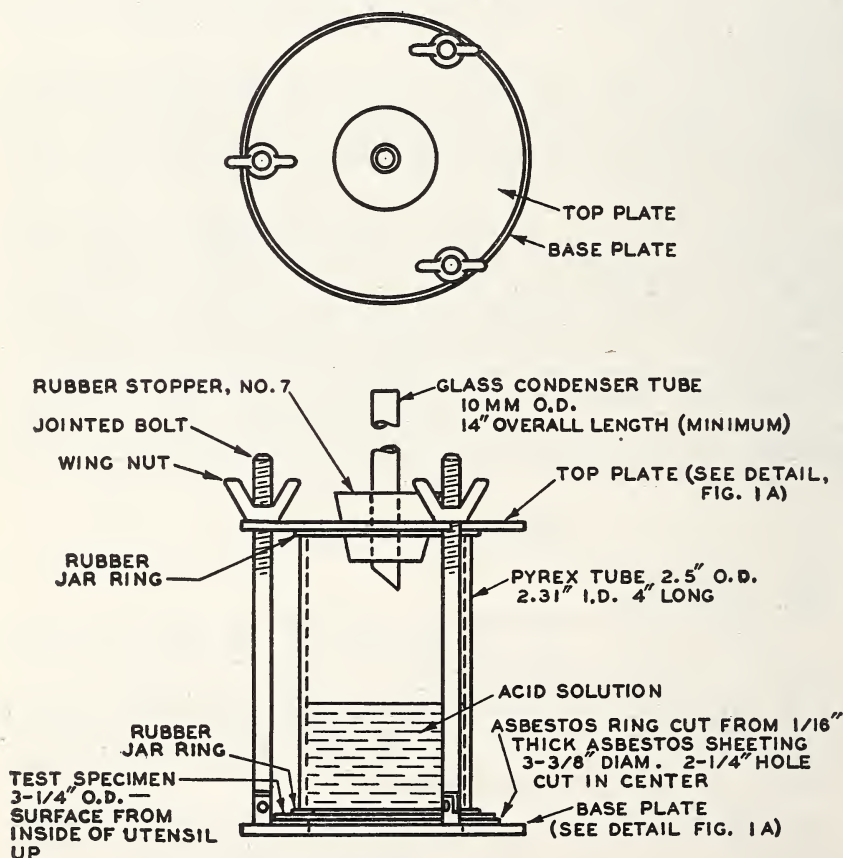


FIGURE 1. Boiling acid resistance apparatus—(assembly).

Three sets required. Available from H & W Manufacturing Co., 121 West Water Street, Urbana, Ill.

- (10) Three $3\frac{3}{4}$ -in.-diameter plates cut from the bottoms of three identical utensils.²

NOTE.—Boiling acid resistance apparatus and punch and die for cutting out specimens may be obtained from H & W Manufacturing Co., 121 West Water Street, Urbana, Ill.

- (11) Distilled water.

16b. Pretest procedure:

- (1) The hot plate, after being leveled, should be heated with the high-heat switch on and drawing 500 watts, as indicated on the wattmeter, for a period of at least 1 hour, to bring it to equilibrium before beginning the test.

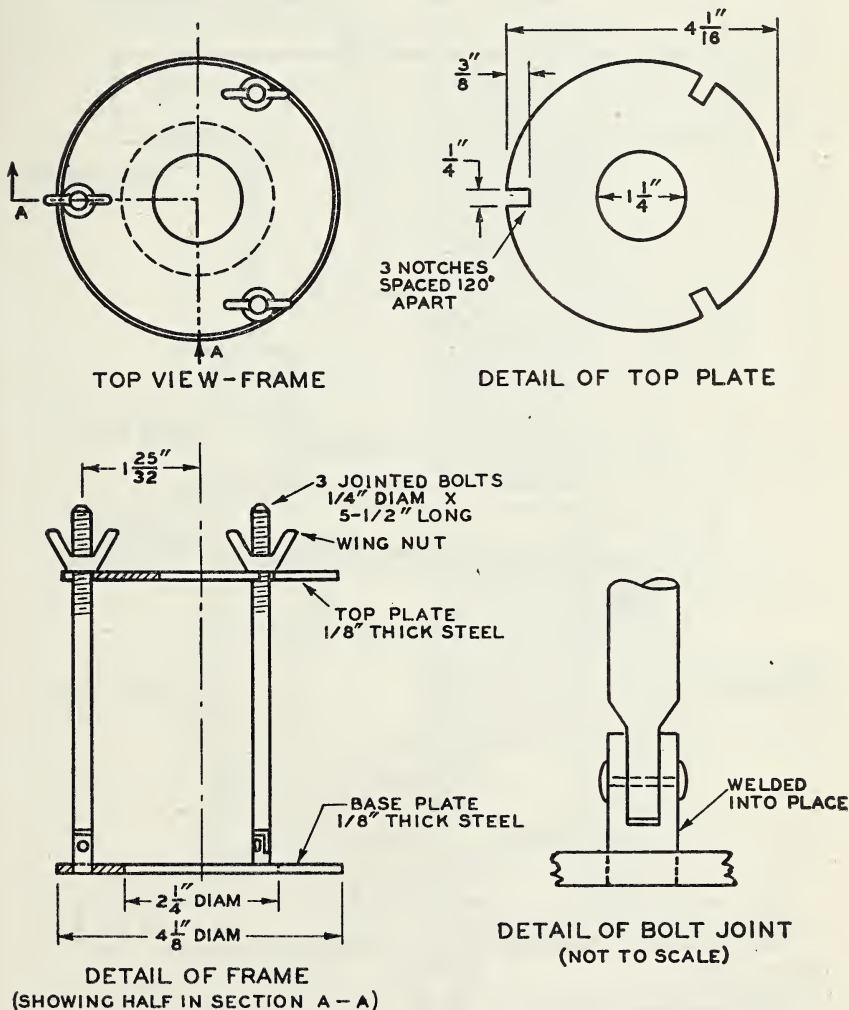


FIGURE 1, A. Boiling acid resistance apparatus—detail.

² Identical utensils means utensils of the same size, shape, and finish.

It is necessary to use the high-heat position of the switch in order to obtain uniform heat over the entire element.

- (2) After the test plates have been cut from the utensils, the edges of the plates are filed with a triangular file to remove any loose enamel chips.
- (3) The enameled plates to be tested should be thoroughly washed, with soap and water if necessary, to remove any grease picked up in handling, rinsed with distilled water, and placed in a drier at 220° F. After 10 minutes the test plates are removed and placed in a desiccator containing calcium chloride.

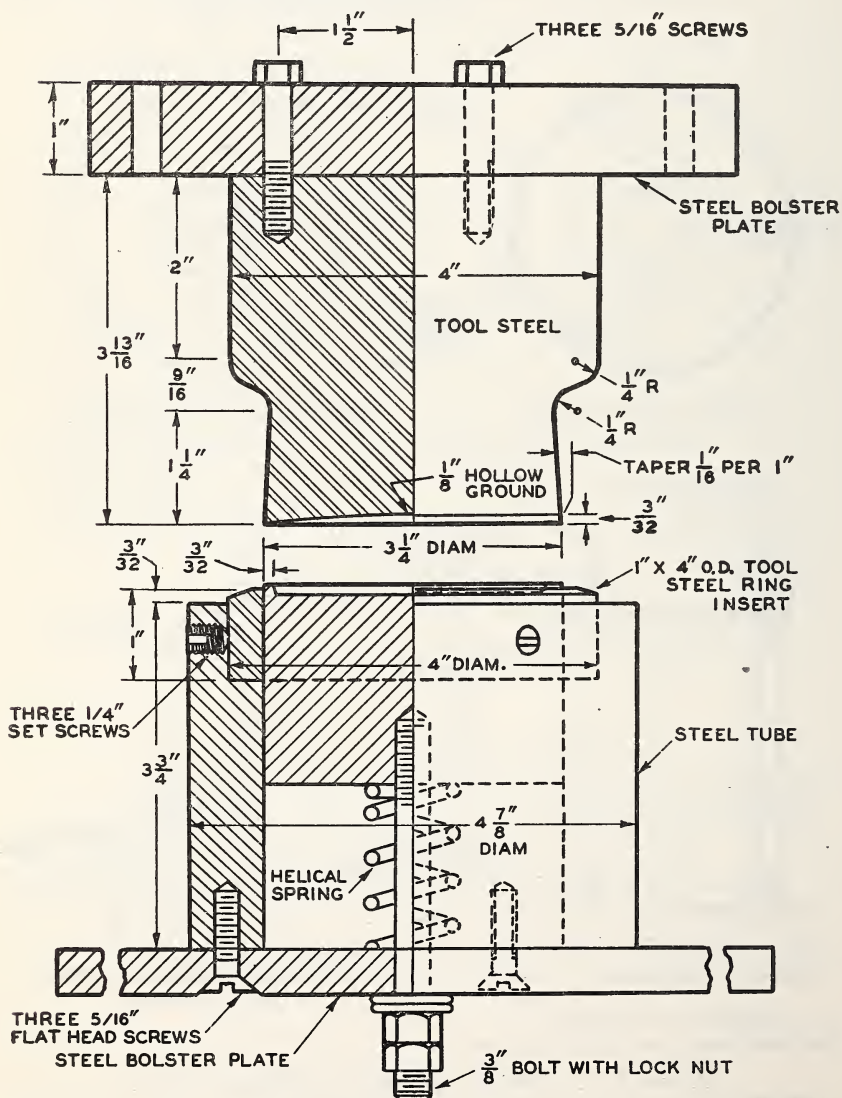


FIGURE 2. Punch and die for cutting out boiling acid resistance test specimens.
Available from the H & W Manufacturing Co., 121 West Water Street, Urbana, Ill.

- (4) Prepare a 6-percent solution of citric acid in distilled water (by weight, 6 grams of citric acid to 94 grams of water) and bring to boiling. Prepare this solution fresh for each test.

16c. Test procedure:

- (1) The plates are removed, one at a time, from the desiccator and held at the edges, and the edges inspected for loose chips. Any chips found shall be removed before the initial weighing.
- (2) The plate is then weighed on an analytical balance, recording the weight of the plate in grams to the fourth decimal place.
- (3) The asbestos gasket (see fig. 1 for detail) is placed above the hole in the base plate of the boiling acid resistance apparatus, and the test plate placed over the gasket, with the surface from the inside of the utensil up. A rubber jar ring is next placed on the test plate. This serves as a seal between the test plate and the Pyrex tube which is placed over it. Another rubber jar ring is placed on top of the Pyrex tube and the cover plate is set on it and clamped in place by tightening the wing nuts. The wing nuts are tightened until a seal is obtained between the Pyrex tube and the test plate. This can be determined by inspecting the seal ring; when the nuts are tight enough, the outside edges of the rubber jar rings are raised from the test plate. The bottom jar rings are used twice, once on each side, then discarded for new ones.
- (4) 150 ml of the boiling citric-acid solution is poured into each Pyrex tube, and the glass condensing tubes are set in position.
- (5) The three test units are promptly centered on the hot plate, as shown in figure 3.
- (6) The test units remain in place for a period of 2½ hours.
- (7) After the solutions begin to boil the wattage input is decreased so that the solutions remain at a rolling boil for the remainder of the test period.
- (8) At the end of the test period the units are removed from the hot plate, the condenser tubes removed, and the solutions poured out. The insides of the tube and test plate are then rinsed with distilled water and the apparatus is dismantled.
- (9) The test plates are removed, rinsed with distilled water (*but the attacked areas are not scrubbed*), and dried in the drier at 220° F. for 10 minutes. After this period they are placed in a desiccator and cooled to room temperature.
- (10) After the plates are cool, they are again weighed separately on the analytical balance.

16d. Calculation of results:

- (1) The difference between the initial and the final weight of each plate, divided by 4, gives the loss in weight per

square inch of exposed area. The average loss per square inch for three specimens from three identical utensils shall be taken for the boiling acid resistance of the enamel.

- (2) Wetted surface area is that surface which is attacked by the test solution.
- (3) If, however, any one of the three results does not agree within plus or minus 10 percent of the average, another set of three plates from utensils identical to those of the first set shall be tested.
- (4) The individual values of loss in weight per square inch for the second set of plates shall be averaged with the individual values of the first set; any individual value not within 10 percent of the average for the six plates shall be discarded; and the average of the remaining values

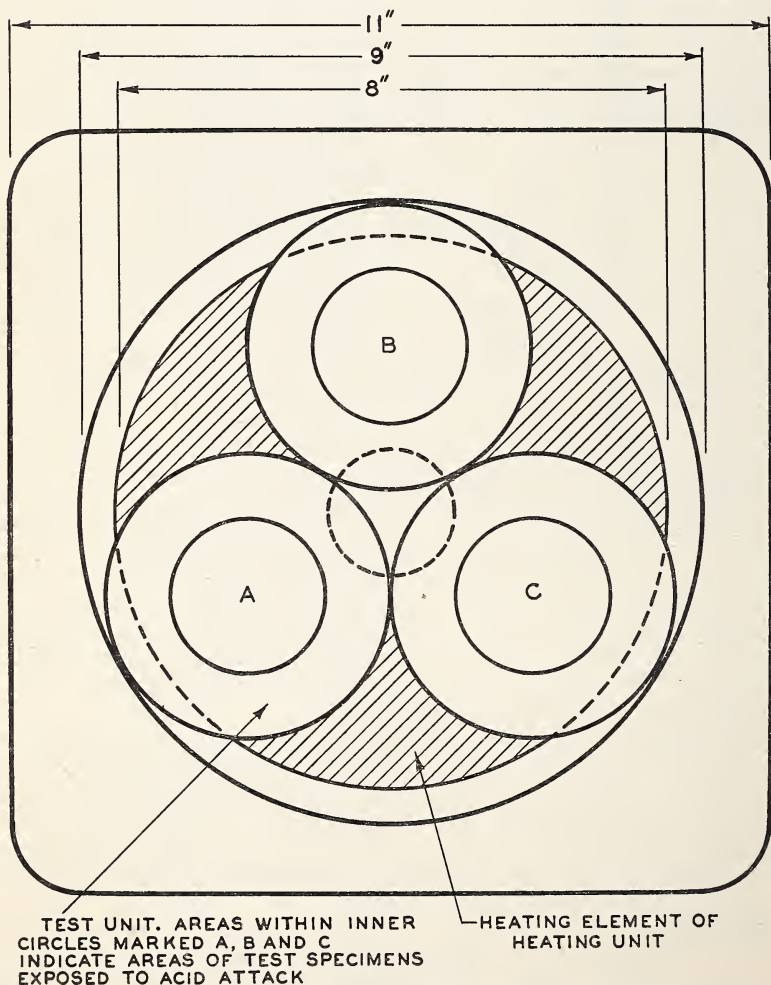


FIGURE 3. Position of test units of boiling acid resistance apparatus on hot plate during boiling acid resistance test.

shall be taken as the boiling acid resistance of the enamel.

17. *Thermal shock resistance.*

17a. Test equipment:

- (1) Heat-Flo SB-2000 hot plate; 115 to 120 volts; 2,000 watts, calibrated with similar units for uniform heat outputs at inputs (adjusted ³) of 300, 350, and at successive increments of 50 watts each through 1,000 watts. Calibrated (adjusted) inputs are used throughout the test. Edwin L. Wiegand Co., 7500 Thomas Boulevard, Pittsburgh, Pa.
- (2) Variac 100-Q transformer (115 volts, primary) or Variac 100-R transformer (230 volts, primary); 2-kilovolt-amperes, 60 cycles. General Radio Co., 30 State Street, Cambridge, Mass.
- (3) Weston Model 432 wattmeter; scale 0 to 3 kilowatts, 75 to 150 volts, 20 amperes, or similar equipment for 230 volts. Weston Electrical Instrument Corp., 810 Penn Avenue, Pittsburgh, Pa. (Or suitable equipment.)
- (4) Eastman Timer or other similar timing equipment. Eastman Kodak Co., Rochester, N. Y.
- (5) Adequate fuse protection.
- (6) 10- to 15-liter bottle or other similar water container.
- (7) 500-ml graduated cylinder.
- (8) A good sponge.
- (9) Either tap or distilled water.
- (10) Five identical utensils.

17b. Pretest procedure:

- (1) The hot plate, after being leveled, is heated with the high-heat switch on and the Variac adjusted so that the wattmeter indicates 300 watts, for a period of at least 1 hour, to bring it to equilibrium before starting the test. It is necessary to use the high-heat switch in order to obtain uniform heat over the entire element.
- (2) The quenching water shall be placed in a large receptacle and the temperature of the water adjusted to $70^{\circ} \pm 2^{\circ}$ F.
- (3) Measure out the amount of water required to fill a test utensil to a depth of 1 inch. This amount of water shall be used for quenching.

17c. Test procedure:

- (1) A dry utensil shall be centered directly on the preheated element.
- (2) After 3 minutes the utensil is removed from the hot plate and immediately filled to a depth of approximately 1 inch with quenching water.
- (3) After 10 seconds the water is poured out and the utensil is wiped out with a damp sponge; after a total non-heating period of 20 seconds the dried utensil is again centered on the heating element.
- (4) Immediately after replacing the utensil on the hot plate, the input is increased 50 watts and the utensil is heated dry for 8 minutes.

³ Adjusted input indicates input with plates purchased according to specifications, which have been calibrated.

- (5) The utensil is then removed and quenched as before. This procedure is repeated until a watt input of 600 watts is reached, after which the input is increased 100 watts each cycle until the utensil fails⁴ or has withstood quenching after 1,000 watts is reached.

17d. Important notes:

- (1) The utensils to be tested must be at room temperature immediately before testing.
- (2) The quenching water must be at $70^{\circ} \pm 2^{\circ}$ F.
- (3) The sponge must be kept wrung out during the test in order to assure a dry or nearly dry utensil for the dry-heating period.
- (4) The wattmeter is placed between the Variac and the hot plate in order to obtain the wattage going into the hot plate. It is conveniently connected at the Variac terminals.
- (5) Fuses are placed between the Variac and the supply outlet and not between the Variac and the hot plate. This is done to protect the Variac and in turn protects the wattmeter and the hot plate.

17e. Calculation of results:

- (1) A rating of 1 is given for each quenching cycle in which the utensil does not fail, beginning with the first quenching as described in par. 17c(2).

Example: A utensil failing in the seventh cycle would have a rating of 6 for the six cycles in which it passed the test successfully. If utensil fails in cycle 9 or in a subsequent cycle, the rating number shall be that of the previous test cycle, not that of the numerically preceding cycle (see example below).

Test data		Calculation of results		
Cycle	Watt input	Pan No.	Cycle of failure	Rating
1	300	1	9	7
2	350	2	11	9
3	400	3	9	7
4	450	4	7	6
5	500	5	9	7
6	550			36
7	600			
9	700			
11	800			
13	900			
15	1,000			
		$\frac{36}{5} = 7.2$ cycles		

- (2) An average of the ratings for five identical utensils shall be taken as the thermal shock rating of the enamel.

18. *Impact resistance.*

18a. Equipment:

- (1) Impact-test machine (see fig. 4 for machine nomenclature). H. & W Manufacturing Co., 121 West Water Street, Urbana, Ill.

⁴ *Definition of failure.*—A failure is the removal of enamel from the utensil generally accompanied by a cracking noise. Fish-scaling and crazing are not thermal-shock failures.

- (2) Five identical utensils.
- (3) Cold-worked duralumin ball $\frac{3}{4}$ inch in diameter, weight $10.0g \pm .05$ gram.

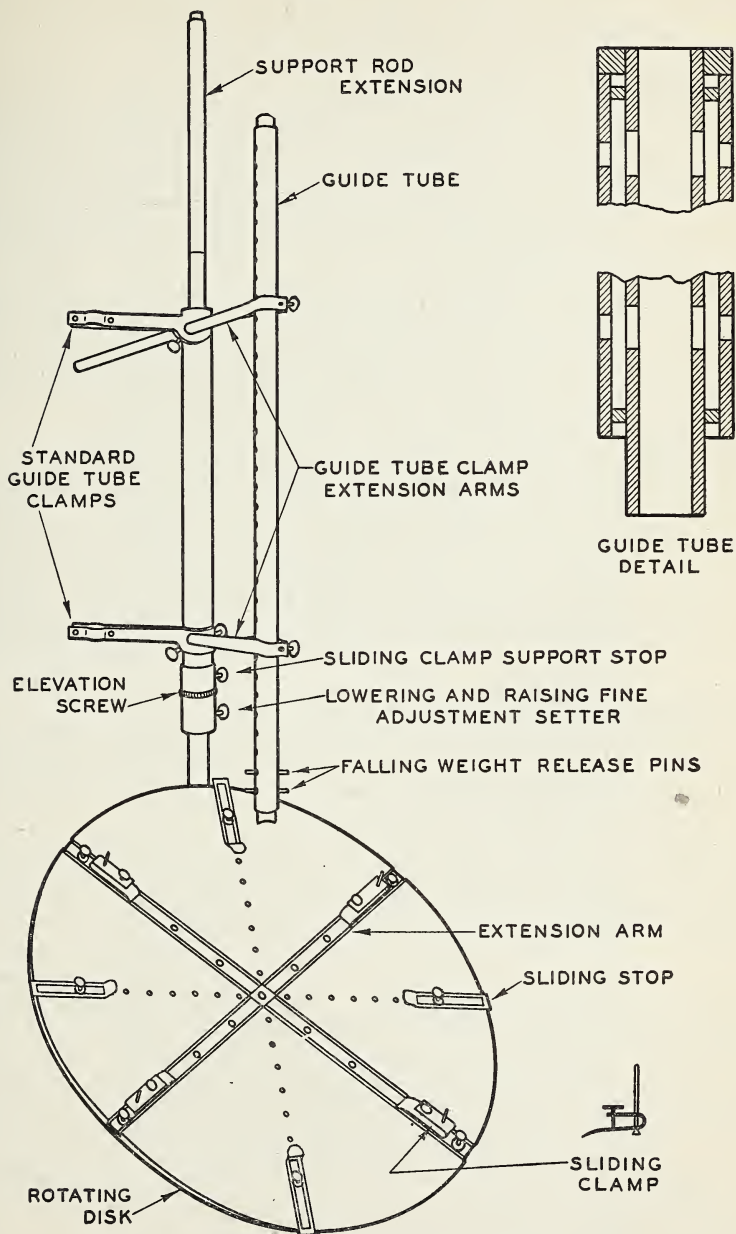


FIGURE 4. *Impact-test machine.*

Available from H & W Manufacturing Co., 121 West Water Street, Urbana, Ill.

18b. Leveling the machine:

- (1) The impact machine should be placed on a firm foundation, and, using the bubble level as a guide, leveled by means of the three leveling screws. The nuts on the leveling screws should be tightened up against the machine base to lock the leveling screws in position.

18c. Adjustment of guide tube:

- (1) The 3-ft. guide tube should be rotated (after loosening the clamps) until the two notches at the bottom of the tube are in a line parallel to the front of the machine; the guide tube being raised or lowered, if necessary, so that the two clamps fall between perforations in the tube. The clamps should then be tightened to hold the guide tube in position.
- (2) The guide-tube assembly should be raised by lifting the bottom clamp support, and swung to one side. This operation places the guide tube out of the way of the operator when clamping test utensils into position and also in changing utensils without readjustment of the guide tube for every utensil of any one set.

18d. Centering and clamping the test piece into position:

- (1) The inverted test piece is placed on the rotating disk and centered approximately by the circles scribed thereon. The four sliding stops are then brought in contact with the test piece and tightened, after which the four sliding clamps are brought into position and set to hold the utensil firmly against the rotating disk. The rotating disk should be moved until one of the ten evenly spaced grooves is directly in front of the guide-tube support rod.

18e. Locating the falling-weight contact point:

- (1) Loosen the three set screws which are located on the right side of the guide-tube support-rod base so that the guide-tube support rod can be moved to and away from the front of the machine.
- (2) The guide tube should now be swung back into its normal or working position, using caution as the lower clamp support settles down over its guide key, so that it is not allowed to rest upon the utensil under test. In case the guide tube does touch the utensil, it may be raised by turning the elevation screw (see fig. 4) until clearance is obtained. It may be necessary to move the guide tube to or away from the support rod until the guide tube is approximately centered above the bottom radius of the utensil. This is done by loosening the set screws holding the guide-tube-clamp extension arms, moving the guide tube, checking to see that the guide tube is vertical, then tightening the set screws.
- (3) The set screws in the support-rod base and the sliding clamp support stop are loosened to permit both the backward or forward and the raising or lowering fine adjustment movements of the guide-tube assembly. The correct point of impact on utensils which have a

bottom radius of less than $\frac{1}{2}$ in. and a bottom diameter of not over 7 in. may be obtained by either one of two methods. (1) The impact locator is placed across the bottom of the test piece with the short arm resting upon the bottom radius directly below the guide tube. The guide tube is lowered by the fine adjustment setter until it nearly touches the bottom radius of the test piece. The guide tube is moved to or away from the front of the machine, as required, until the notches in the bottom of the guide tube are in line with the point of contact between the bottom radius of the test piece and the short arm of the impact point locator. The set screws on the guide-tube support-rod base should now be tightened to lock the support rod in position, after which the guide tube should be raised to a point $\frac{1}{8}$ in. above the point of impact of the test piece and locked in position by tightening the set screw in the sliding clamp support stop. The set screw in the lower clamp support is tightened to prevent a sideways motion of the guide tube. (2) The guide tube is raised to a point $\frac{1}{8}$ in. above the point of impact of the test piece and both the set screw in the sliding clamp support stop and the set screw in the lower clamp support are tightened. The impact weight is placed on the bottom radius of the test piece directly below and inside the bottom of the guide tube. The guide tube is then moved to or away from the front of the machine until the impact weight just remains in place, after which the support-rod base set screws are tightened to lock the guide tube in position.

- (4) When round-shaped utensils are tested, the guide tube should be moved to or away from the front of the machine and raised or lowered a small amount to obtain the correct point of impact for each test point; this adjustment is necessary as the test piece is centered only approximately on the rotating disk and some ware is not true in shape. When oval, square, or rectangular utensils are tested, the utensil itself should be moved for nearly every test point and the guide tube should be adjusted for the correct point of impact at each test point.

18f. Pretest procedure:

- (1) One of the two falling-weight release pins is placed through the set of perforations at a level of 5 in. below the specified minimum height of impact the utensil must pass, and the falling weight is dropped into the tube. The second release pin is placed in the set of perforations directly above the now resting falling weight.

18g. Test procedure:

- (1) The test is begun by pulling the lower release pin, which allows the falling weight to strike the bottom radius of the utensil at the correct point of contact. The falling weight, after striking the utensil, is again dropped into

the guide tube, and the previously pulled release pin is placed in the next set of perforations above the again-resting falling weight. This procedure is continued until the first chip visible to the normal eye at the distance of 18 in. occurs upon the enameled surface of the utensil. At this point, the perforation directly below the release pin remaining in the guide tube is noted and recorded as the failure point, in inches, for this particular point on the utensil.

- (2) The rotating disk is now moved until the next groove lies in front of the guide-tube support rod, the guide tube is adjusted if necessary to provide the correct point of impact, and the above procedure is again carried out, always starting the test by releasing the falling weight from the set of perforations at a level of 5 in. below the specified minimum height of impact the utensil must pass. This procedure is repeated until 10 points on the bottom radius of the utensil have been tested and have or have not failed at some set of perforations within the length of the 3-ft. guide tube.
- (3) One complete impact test consists in testing 10 points on the bottom radius of each of 5 identical utensils, for a total of 50 tested points.

18h. Important notes:

- (1) Care should be taken in tightening both sliding stops and clamps, as errors may be introduced if the utensil is not held firmly against the base plate.
- (2) When returning the guide tube to its normal or working position, do not force the lower clamp support down upon the guide key, but let it settle into position of its own accord.
- (3) When returning the guide tube to its normal position, never allow it to fall or rest upon the test utensil.

18i. Calculation of results:

- (1) Each utensil shall be tested at 10 points on the bottom radius and an average taken for the impact resistance of a particular utensil of any one set.
- (2) Five identical utensil averages, of 10 points each, shall be averaged for the impact-resistance evaluation for the enamel.

IDENTIFICATION

19. In order that purchasers may be assured that porcelain-enameled steel utensils purchased actually comply with all requirements of the commercial standard, it is recommended that the manufacturers include the following statement in conjunction with their name and address on labels, invoices, sales literature, etc.:

This utensil is finished in multiple-coated ⁵ single-coated ⁵ porcelain enamel, which is *glass fused onto steel*, and complies with all requirements of Commercial Standard CS100-47, as developed by the trade under the procedure of the National Bureau of Standards and issued by the United States Department of Commerce.

⁵ Use the description which applies.

20. When space limitations require an abbreviated statement, the following is recommended:

Complies with CS100-47, as developed by the trade and issued by the U. S. Department of Commerce.

21. In order to fix responsibility for the compliance, it is required that the label incorporate or be accompanied by a second label which incorporates the name of the manufacturer or distributor.

EFFECTIVE DATE

22. Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective from December 7, 1947.

Edwin W. Ely,
Chief, Commodity Standards Division.

STANDING COMMITTEE

23. The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Each organization nominated its own representative. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee, or to the Commodity Standards Division, National Bureau of Standards, which acts as secretary for the committee.

EARL H. KELSEY, *Chairman*

Manufacturers:

- H. C. ARNOLD, Federal Enameling & Stamping Co., Box 225, Pittsburgh, Pa.
- E. C. DEXHEIMER, National Enameling & Stamping Co., Granite City, Ill.
- D. S. HUNTER, Hunter-Thomas, Associates, Keith Building, Cleveland 14, Ohio. Representing Enameled Utensil Manufacturers Council.
- EARL H. KELSEY, Columbian Enameling & Stamping Co., Terre Haute, Ind.
- WALTER B. MOORE, The Moore Enameling & Manufacturing Co., West Lafayette, Ohio.
- JEAN C. VOLLRATH, The Vollrath Co., 1236 North Eighteenth Street, Sheboygan, Wis.
- ASHLEY F. WILSON, JR., Lisk-Savory Corp., 90 Alabama Street, Buffalo 4, N. Y.

Distributors:

- T. L. BLANKE, National Retail Dry Goods Association, 101 West Thirty-first Street, New York 1, N. Y.
- P. FITZGERALD, Albert Pick Co., Inc., 2159 Pershing Road, Chicago 9, Ill. Representing Food Service Equipment Industry, Inc.
- HERMAN HARTMANN, Arkwright, Inc., 128 West Thirty-first Street, New York, N. Y. Representing Association of Buying Offices, Inc.
- THOMAS E. MALEY, Sears, Roebuck & Co., 925 South Homan Avenue, Chicago 7, Ill. Representing Mail Order Association of America.
- CLYDE T. NISSEN, Limited Price Variety Stores Association, Inc., 25 West Forty-third Street, New York 18, N. Y.
- RIVERS PETERSON, National Retail Hardware Association, 333 North Pennsylvania Street, Indianapolis 4, Ind.

Users:

- DEWEY H. PALMER, Hospital Bureau of Standards & Supplies, Inc., 247 Park Avenue, New York 17, N. Y.
 MRS. CHARLOTTE PAYNE, National Council of Women of the U. S., 501 Madison Avenue, New York 22, N. Y.
 DR. JOSEPHINE L. PEIRCE, Ohio Federation of Women's Clubs, 1006 Cook Tower, Lima, Ohio.
 MISS CORNELIA PRATT, Orange Memorial Hospital, Orange, N. J. Representing American Hospital Association.
 MISS LENORE SATER, Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, Research Center, Beltsville, Md. Representing American Home Economics Association.

Testing laboratories:

- G. W. ALDER, Good Housekeeping Institute, Fifty-seventh Street at Eighth Avenue, New York 19, N. Y.
 A. I. ANDREWS, Department of Ceramic Engineering, University of Illinois, Urbana, Ill.
 W. N. HARRISON, Mineral Products Division, National Bureau of Standards, Washington 25, D. C.
 L. K. JONES, Pittsburgh Testing Laboratory, Stevenson and Locust Streets, Pittsburgh 19, Pa. Representing American Council of Commercial Laboratories.

HISTORY OF PROJECT

24. Pursuant to a request from the General Federation of Women's Clubs under date of June 2, 1934, the National Bureau of Standards gave consideration to test requirements for enameled utensils in the course of an investigation being conducted on the properties, and the methods of testing porcelain enamels.

25. Under the sponsorship of the Enameled Utensil Manufacturers Council, research work was likewise done on this subject at the University of Illinois, under the direction of Professor A. I. Andrews.

26. Under date of October 2, 1941, the Enameled Utensil Manufacturers Council submitted a tentative draft of a proposed commercial standard for this ware, which was circulated to a number of representatives of national organizations of consumers, distributors, testing laboratories, and Federal agencies for advance consideration and recommendations. The draft was adjusted in line with the resulting recommendations at a conference in Chicago, Ill., on December 11, 1941. A general conference was held in Chicago, January 29, 1942, to which all interested users, distributors, producers, and testing laboratories were invited. The adjusted draft as adopted by the general conference was circulated to all concerned on February 20, 1942, for written acceptance.

27. Upon receipt of written acceptances from a preponderant majority, announcement was issued on March 30, 1942, that the standard, identified as CS100-42, would become effective for new production from September 30, 1942.

FIRST REVISION

28. On December 16, 1943, the Enameled Utensil Manufacturers Council proposed changes to broaden the scope so as to cover single-coated as well as multiple-coated utensils, and to recognize improvements in quality by increasing the severity of requirements for boiling acid resistance and thermal shock. Following review, adjustment,

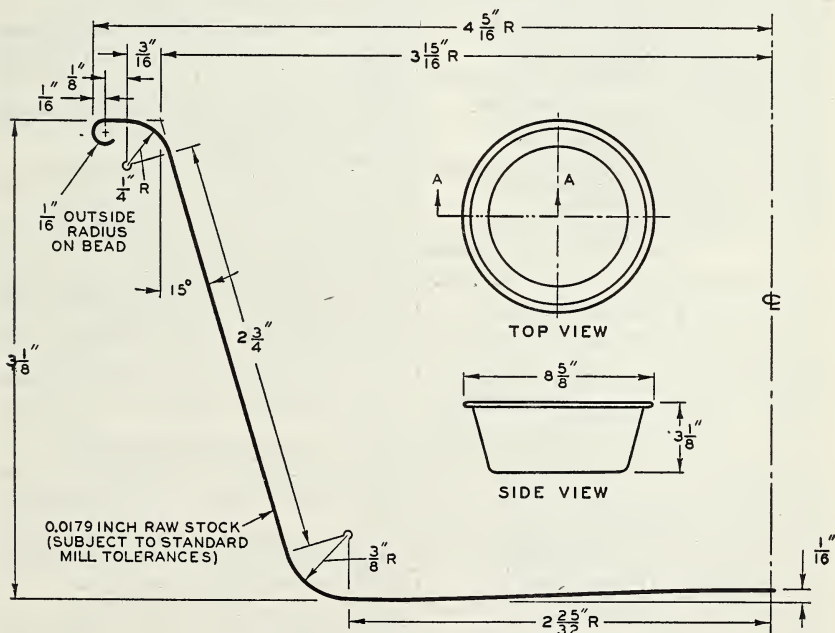
and approval by the standing committee, the recommended revision was circulated on July 18, 1944, to the entire trade for written acceptance. Written acceptances having been received from a preponderant majority, an announcement was issued on September 25, 1944, that the revised standard would become effective for new production from October 25, 1944.

SECOND REVISION

29. On recommendation of the Enameled Utensil Manufacturers Council, a letter under date of May 19, 1945, was circulated to the trade encouraging the test of shapes and sizes not covered by CS100-44. This subsequently led to action by the Council to revise the standard to include tests on all shapes and sizes adaptable to the specified test methods and equipment, as well as clarification of the test methods themselves. Upon approval of the standing committee, a recommended revision was circulated on April 17, 1947, to producers, distributors, users, and related interests for written acceptance. The trade has since accepted this revision, and on October 30, 1947, announcement was made that it would become effective as a voluntary standard of the trade from December 7, 1947.

APPENDIX

The standard 2-quart pan, illustrated in figure 5, is used by the industry as a basis for comparability in routine check tests and research.



PROFILE OF SECTION A-A

FIGURE 5. Standard 2-quart test pan.

ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, testing, and purchase of porcelain-enameled steel utensils. In accepting the standard, they reserved the right to depart therefrom as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labelled as conforming thereto, and that purchasers will require specific evidence of conformity.

ASSOCIATIONS

(General Support)

Alabama Federation of Women's Clubs, Dora, Ala.
American Medical Association, Council on Physical Medicine, Chicago, Ill.
American Retail Federation, Washington, D. C.
American Surgical Trade Association, Chicago, Ill.
Barton Hospital Association, Inc., Watertown, S. Dak.
Cleveland Hospital Council, The, Cleveland, Ohio.
Dairymen's League Co-Operative Association, Inc., New York, N. Y.
Hospital Council, Inc., Newark, N. J.
Illinois Hospital Association, Springfield, Ill.
National Council of Women of the United States, New York, N. Y.
National Retail Dry Goods Association, New York, N. Y.
National Retail Hardware Association, Indianapolis, Ind.
Porcelain Enamel Institute, Inc., Washington, D. C.

FIRMS AND OTHER ORGANIZATIONS

Abraham & Straus, Inc., Brooklyn, N. Y.
Aloe, A. S., Co., St. Louis, Mo.
Anderson, C. F., Co., Inc., Minneapolis, Minn.
Anderson Newcomb Co., Huntington, W. Va.
Arkwright, Inc., New York, N. Y.
Armour Research Foundation, Chicago, Ill.
Ball Stores, Inc., Muncie, Ind.
Bellaire Enamel Co., The, Bellaire, Ohio.
Belmont Stamping & Enameling Co., The, New Philadelphia, Ohio.
Benjamin, Eugene, & Co., Sacramento, Calif.
Berg, Charles F., Inc., Portland, Oreg.
Birmingham, City of, Birmingham, Ala.
Blickman, S., Inc., Weehawken, N. J.
Blodgett Memorial Hospital, Grand Rapids, Mich.
Bradenton Woman's Club, Bradenton, Fla.
Bryson, A., Co., Inc., Ware, Mass.
Butler Bros., Chicago, Ill.
Caldwell & Bloor Co., The, Mansfield, Ohio.
California Metal Enameling Co., Los Angeles, Calif.
California Testing Laboratories, Inc., Los Angeles, Calif.
Canton Stamping & Enameling Co., The, Canton, Ohio.
Challenge Stamping & Porcelain Co., Grand Haven, Mich.
Chicago, Clinics of the University of, Chicago, Ill.
Chicago Vitreous Enamel Product Co., Cicero, Ill.
Cincinnati, City of, Department of Purchasing, Cincinnati, Ohio.
Columbia Hospital of Richland County, Columbia, S. C.
Columbian Enameling & Stamping Co., Inc., Terre Haute, Ind.
Cruden Martin Manufacturing Co., St. Louis, Mo.
Danner Bros. Co., Indianapolis, Ind.
Detroit Testing Laboratory, The, Detroit, Mich.
Dougherty, W. F., & Sons, Philadelphia, Pa.
Duke Manufacturing Co., St. Louis, Mo.
Eastern-Columbia, Los Angeles, Calif.
Ekroth Laboratories, Inc., Brooklyn, N. Y.
Electrical Testing Laboratories, Inc., New York, N. Y.
Elmira Drug & Chemical Co., Elmira, N. Y.
Episcopal Hospital, Philadelphia, Pa.
Ferro Enamel Corp., Cleveland, Ohio.

Fishman, M. H., Co., Inc., 5c to \$1.00 Stores, New York, N. Y.
Fletcher Enamel Co., The, Dunbar, W. Va.
Flint Medical & Surgical Supply Co., Flint, Mich.
Fowler, Dick & Walker, Inc., Binghamton, N. Y.
Fulton, Robert A., Co., Pittsburgh, Pa.
Ganger, Inc., New York, N. Y.
Gaynor Bagstad Co., Sioux City, Iowa.
General Hotel Supply Co., San Antonio, Tex.
Genesee Hospital, The, Rochester, N. Y.
Geuder, Paeschke & Frey Co., Milwaukee, Wis.
Gold Star Products, Inc., Detroit, Mich.
Gordon, Morris, & Son, Inc., Boston, Mass.
Grace Hospital, The, Detroit, Mich.
Grauman Co., The, Denver, Colo.
Green, H. L., Co., Inc., New York, N. Y.
Halle Bros. Co., The, Cleveland, Ohio.
Hard Manufacturing Co., Buffalo, N. Y.
Harvey, J. B., Lynchburg, Va.
Herron, James H., Co., The, Cleveland, Ohio.
Horton, H., & Co., Inc., Albany, N. Y.
Hospital Bureau of Standards & Supplies, Inc., New York, N. Y.
Hospital Supply & Watters Laboratories, Inc., New York, N. Y.
Illinois, University of, Department of Ceramic Engineering, Urbana, Ill.
Indiana University Medical Center, Indianapolis, Ind.
Jamison Laboratories, Brooklyn, N. Y.
Jamison Sempke Co., New York, N. Y.
Jones Metal Products Co., The, West Lafayette, Ohio.
Karrer, E. H., Co., Milwaukee, Wis. (General support).
Kilpatrick, Thomas, Co., Omaha, Nebr.
King's Indiana Billiard Co., Inc., Indianapolis, Ind.
Krebs Bros. Supply Co., Little Rock, Ark.
Kreisers, Inc., Sioux Falls, S. Dak.
Kresge, S. S., Co., Detroit, Mich.
Kress, S. H., & Co. (Variety Chain Store Syndicate), New York, N. Y.
Lamson, M. H., Inc., New York, N. Y.
Langsenkamp, F. H., Co., Indianapolis, Ind.
Lincoln Fixture & Supply Co., Lincoln, Nebr.
Lisk-Savory Corp., Buffalo, N. Y.
McCall's Magazine, New York, N. Y.
McGean Chemical Co., The, Cleveland, Ohio.
Mangrum, Holbrook & Elkus, San Francisco, Calif.
Mercer Hospital, The, Trenton, N. J.
Michigan, Hospital of the University of, Ann Arbor, Mich.
Michigan State College, East Lansing, Mich.
Minnesota, Hospitals of the University of, Minneapolis, Minn.
Minnesota Testing Laboratories, Inc., Duluth, Minn.
Missoula Mercantile Co., Missoula, Mont.
Montgomery Hospital, Norristown, Pa.
Moore Enameling & Manufacturing Co., The, West Lafayette, Ohio.
Nachman's Department Store, Inc., Newport News, Va.
Nashville Surgical Supply Co., Nashville, Tenn.
National Enameling & Stamping Co., Milwaukee, Wis.
Orange Memorial Hospital, Orange, N. J.
Paine Drug Co., The, Rochester, N. Y.
Paterson General Hospital, Paterson, N. J.
Patzig Testing Laboratories, Des Moines, Iowa, (General support).
Penniman & Browne, Baltimore, Md.
Pennsylvania Hospital, Philadelphia, Pa.

Pennsylvania State College, The, State College, Pa.
 Pfaudler Co., The, Rochester, N. Y. (General support.)
 Physicians Supply Co., Inc., San Diego, Calif.
 Polar Ware Co., Sheboygan, Wis.
 Porcelain Metals Corp., Louisville, Ky. (General support.)
 Republic Stamping & Enameling Co., Canton, Ohio.
 Rich's, Inc., Atlanta, Ga.
 Rike-Kumler Co., The, Dayton, Ohio.
 Rupp & Bowman Co., The, Toledo, Ohio.
 St. Louis, City of, St. Louis, Mo.
 St. Luke's Hospital, Cleveland, Ohio.
 Sears, Roebuck & Co., Chicago, Ill.
 Sells, M., Co., San Francisco, Calif.
 Shannon Supply Co., Rochester, N. Y.
 Shaw Supply Co., Inc., Tacoma, Wash.
 Shepard Co., The, Providence, R. I.
 Spokane Surgical Supply Co., The, Spokane, Wash.
 Sprouse-Reitz Co., Inc., Portland, Oreg.
 Stillman & Van Sieten, Inc., New York, N. Y.
 Strong Manufacturing Co., The, Sebring, Ohio.
 Surgical Business, New York, N. Y. (General support.)
 Surgical Supply Co., Jacksonville, Fla.
 Tafel, Theo., Louisville, Ky.
 Thompson-Winchester Co., Inc., Boston, Mass.

Titanium Alloy Manufacturing Co., Niagara Falls, N. Y. (General support.)
 Twining Laboratories, The, Fresno, Calif. (General support.)
 United Mail Order House, New York, N. Y.
 United States Stamping Co., Moundsville, W. Va.
 United States Testing Co., Inc., Hoboken, N. J.
 Van Range, John, Co., The, Division of The Edwards Manufacturing Co., Cincinnati, Ohio.
 Virginia Polytechnic Institute, Blacksburg, Va.
 Vollrath Co., The, Sheboygan, Wis.
 Wallace Co., The, Schenectady, N. Y.
 Wendt-Bristol Co., The, Columbus, Ohio.
 Western Auto Supply Co., Kansas City, Mo.
 Wilson, W. B., & Son, Cape Charles, Va.
 Winberg Co., The, Chicago, Ill.
 Winchester Surgical Supply Co., Charlotte, N. C.
 Wisconsin, State of, Bureau of Purchases, Madison, Wis.
 Woolworth, F. W., Co., New York, N. Y.

UNITED STATES GOVERNMENT

Agriculture, Department of, Division of Purchase, Sales & Traffic, Washington, D. C.
 Army, Department of the, Washington, D. C.
 Public Health Service, Washington, D. C.

COMMERCIAL STANDARDS

CS No.	Item
0-40.	Commercial standards and their value to business (third edition).
1-42.	Clinical thermometers (third edition).
2-30.	Mopsticks.
3-40.	Stoddard solvent (third edition).
4-29.	Staple porcelain (all-clay) plumbing fixtures.
5-46.	Pipe nipples; brass, copper, steel and wrought-iron (second edition).
6-31.	Wrought-iron pipe nipples (second edition). Superseded by CS5-46.
7-29.	Standard weight malleable iron or steel screwed unions.
9-31.	Gage blanks (third edition).
9-33.	Builders' template hardware (second edition).
10-29.	Brass pipe nipples. Superseded by CS5-46.
11-41.	Moisture regains of cotton yarns (second edition).
12-40.	Fuel oils (third edition).
13-44.	Dress patterns (third edition).
14-43.	Boys' bottom-on waists, shirts, junior and sport shirts (made from woven fabrics) (third edition).
15-46.	Men's pajama sizes (made from woven fabrics) (third edition).
16-29.	Wall paper.
17-47.	Diamond core drill fittings (fourth edition).
18-29.	Hickory golf shafts.
19-32.	Foundry patterns of wood (second edition).
20-47.	Staple vitreous china plumbing fixtures (fourth edition).
21-39.	Interchangeable ground-glass joints, stopcocks, and stoppers (fourth edition).
22-40.	Builders' hardware (nontemplate) (second edition).
23-30.	Feldspar.
24-43.	Screw threads and tap-drill sizes.
25-30.	Special screw threads. Superseded by CS24-43.
26-30.	Aromatic red cedar closet lining.
27-36.	Mirrors (second edition).
28-46.	Cotton fabric tents, tarpaulins and covers (second edition).
29-31.	Staple seats for water-closet bowls.
30-31.	Colors for sanitary ware.
31-38.	Wood shingles (fourth edition).
32-31.	Cotton cloth for rubber and pyroxylin coating.
33-43.	Knit underwear (exclusive of rayon) (second edition).
34-31.	Bag, case, and strap leather.
35-47.	Hardwood plywood (third edition).
36-33.	Fourdrinier wire cloth (second edition).
37-31.	Steel bone plates and screws.
38-32.	Hospital rubber sheeting.

CS No.	Item
39-37.	Wool and part wool blankets (second edition). (Withdrawn as commercial standard, July 14, 1941).
40-32.	Surgeons' rubber gloves.
41-32.	Surgeons' latex gloves.
42-43.	Structural fiber insulating board (third edition).
43-32.	Grading of sulphonated oils.
44-32.	Apple wraps.
45-47.	Douglas fir plywood (seventh edition).
46-40.	Hosiery lengths and sizes (third edition).
47-34.	Marking of gold-filled and rolled-gold-plate articles other than watchcases.
48-40.	Domestic burners for Pennsylvania anthracite (underfeed type) (second edition).
49-34.	Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
50-34.	Binders board for bookbinding and other purposes.
51-35.	Marking articles made of silver in combination with gold.
52-35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
53-35.	Colors and finishes for cast stone.
54-35.	Mattresses for hospitals.
55-35.	Mattresses for institutions.
56-41.	Oak flooring (second edition).
57-40.	Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings (second edition).
58-36.	Woven elastic fabrics for use in overalls (overall elastic webbing).
59-44.	Textiles—testing and reporting (fourth edition).
60-36.	Hardwood dimension lumber.
61-37.	Wood-slat venetian blinds.
62-38.	Colors for kitchen accessories.
63-38.	Colors for bathroom accessories.
64-37.	Walnut veneers.
65-43.	Methods of analysis and of reporting fiber composition of textile products (second edition).
66-38.	Marking of articles made wholly or in part of platinum.
67-38.	Marking articles made of karat gold.
68-38.	Liquid hypochlorite disinfectant, deodorant, and germicide.
69-38.	Pine oil disinfectant.
70-41.	Phenolic disinfectant (emulsifying type) (second edition) (published with CS71-41).
71-41.	Phenolic disinfectant (soluble type) (second edition) (published with CS70-41).

CS No.	Item	CS No.	Item
72-38.	Household insecticide (liquid spray type).	108-43.	Treading automobile and truck tires.
73-45.	Old growth Douglas fir standard stock doors (third edition).	109-44.	Solid-fuel-burning forced-air furnaces.
74-39.	Solid hardwood wall paneling.	110-43.	Tire repairs—vulcanized (passenger, truck, and bus tires).
75-42.	Automatic mechanical draft oil burners designed for domestic installations (second edition).	111-43.	Earthenware (vitreous-glazed) plumbing fixtures.
76-39.	Hardwood interior trim and molding.	112-43.	Homogeneous fiber wallboard.
77-40.	Sanitary cast-iron enameled ware.	113-44.	Oil-burning floor furnaces equipped with vaporizing pot-type burners.
78-40.	Ground-and-polished lenses for sun glasses (second edition) (published with CS79-40).	114-43.	Hospital sheeting for mattress protection.
79-40.	Blown, drawn, and dropped lenses for sun glasses (second edition) (published with CS78-40).	115-44.	Porcelain-enameled tanks for domestic use.
80-41.	Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).	116-44.	Bituminized-fibre drain and sewer pipe.
81-41.	Adverse-weather lamps for vehicles (after market).	117-44.	Mineral wool; blankets, blocks, insulating cement, and pipe insulation for heated industrial equipment.
82-41.	Inner-controlled spotlamps for vehicles (after market).	118-44.	Marking of jewelry and novelties of silver.
83-41.	Clearance, marker, and identification lamps for vehicles (after market).	(E)119-45.	Dial indicators (for linear measurements).
84-41.	Electric tail lamps for vehicles (after market).	120-46.	Standard stock ponderosa pine doors (second edition).
85-41.	Electric license-plate lamps for vehicles (after market).	121-45.	Women's slip sizes (woven fabrics).
86-41.	Electric stop lamps for vehicles (after market).	122-45.	Western hemlock plywood.
87-41.	Red electric warning lanterns.	123-45.	Grading of diamond powder.
88-41.	Liquid-burning flares.	(E)124-45.	Master disks.
89-40.	Hardwood stair treads and risers.	125-47.	Prefabricated homes (second edition).
90- .	(Reserved for power shovels and cranes).	126-45.	Tank-mounted air compressors.
91-41.	Factory-fitted Douglas fir entrance doors.	127-45.	Self-contained mechanically refrigerated drinking water coolers.
92-41.	Cedar, cypress and redwood tank stock lumber.	128-45.	Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
93-41.	Portable electric drills (exclusive of high frequency).	129-47.	Materials for safety wearing apparel (second edition).
94-41.	Calking lead.	130-46.	Color materials for art education in schools.
95-41.	Lead pipe.	131-46.	Industrial mineral wool products, all types—testing and reporting.
96-41.	Lead traps and bends.	132-46.	Hardware cloth.
97-42.	Electric supplementary driving and passing lamps for vehicles (after market).	133-46.	Woven wire netting.
98-42.	Artists' oil paints.	134-46.	Cast aluminum cooking utensils (metal composition).
99-42.	Gas floor furnaces—gravity circulating type.	135-46.	Men's shirt sizes (exclusive of work shirts).
100-47.	Porcelain-enameled steel utensils (third edition).	136-46.	Blankets for hospitals (wool, and wool and cotton).
101-43.	Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.	137-46.	Size measurements for men's and boys' shorts (woven fabrics).
102- .	(Reserved for Diesel and fuel-oil engines).	138-47.	Insect wire screening.
103-42.	Cotton and rayon velour (jacquard and plain).	139-47.	Work gloves.
104-46.	Warm-air furnaces equipped with vaporizing pot-type oil burners (second edition).	140-47.	Testing and rating convectors.
105-43.	Mineral wool; loose granulated, or felted form, in low-temperature installations.	141-47.	Sine bars, blocks, plates, and fixtures.
106-44.	Boys' pajama sizes (woven fabrics) (second edition).	142-47.	Automotive lifts.
107-45.	Commercial electric-refrigeration condensing units (second edition). (Withdrawn as commercial standard September 4, 1947.)	143-47.	Standard strength and extra strength perforated clay pipe.
		144-47.	Formed metal porcelain enameled sanitary ware.
		145-47.	Testing and rating hand-fired hot-water-supply boilers.
		146-47.	Gowns for hospital patients.

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

¹ Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions with a view toward early revision.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not been previously filed, this sheet, properly filled in, signed, and returned, will provide for the recording of your organization as an acceptor of this commercial standard.

Date -----

Commodity Standards Division,
National Bureau of Standards,
Washington 25, D. C.

Sirs:

We believe that Commercial Standard CS100-47 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable as a

☐ Manufacturer ¹
☐ Testing laboratory ¹

☐ Distributor ¹
☐ User ¹

of porcelain-enameled steel utensils. We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer -----
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer -----

Organization ² -----
(Fill in exactly as it should be listed)

Street address -----

City, zone, and State -----

¹ In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

² Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.